DOCUMENT RESUME

ED 033 755 PS 002 510

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TITLE	Infant Day Care and Attachment.
INSTITUTION	Syracuse Univ., N.Y. Children's Center.
Spons Agency	Children's Bureau (DHEW), Washington, D.C. Social and Rehabilitation Service.
Pub Date	1 Apr 69
Note	30p.; Paper presented at the 46th Annual Meeting of the American Orthopsychiatric Association, April 1, 1969
EDRS Price	EDRS Price MF-$0.25 HC-$1.60
Descriptors	*Child Development, Cognitive Development, *Day Care Programs, Emotional Development, *Infancy, Infants, *Longitudinal Studies, Mothers, *Parent Child Relationship, Social Development
Identifiers	Cattell Infant Intelligence Scale, Home Stimulation Inventory, Stanford Binet

Abstract

In a longitudinal study, a group of 41 children from lower class families were examined for differences in child-mother and mother-child attachment patterns at 30 months of age. Twenty-three children had been cared for by their mothers from birth until 30 months of age, and 18 had been enrolled in a day care center for at least 1 year. Data sources were an intensive semistructured interview to rate mother-child interaction, a Home Stimulation Inventory scored on the basis of a home visit, and developmental testing using the Stanford-Binet or Cattell Infant Intelligence Scale. No significant differences in child-mother or mother-child attachment were found between children reared at home and day care children. In respect to child-mother attachment, better developed infants tended to be more positively related to their mothers and came from homes where a high quantity and quality of stimulation was available. It was concluded that infant day care programs can contribute positively to the cognitive, social, and emotional development of the child without harming the child's emotional attachment to the mother. (DR)

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INFANT DAY CARE AND ATTACHMENT[1,2]

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Day care for infants has had a slow crawl toward social respectability. Boosted on the one hand by zealots who see in it an antidote for many of today's social ills, it has been denounced on the other hand as destructive of a child's potential for normal social and emotional development. Such partisanship has made it somewhat difficult to operate innovative programs with sufficient objectivity to permit collection of the data needed to establish guidelines for current and future programs.

The authors and their colleagues in Syracuse, New York have been engaged in operating a day care program for infants and preschoolers for four years. The broad aim of the program was to create an environment which would foster optimal cognitive, social, and emotional development in young children from disadvantaged families. As data from other studies suggested that by age three such children already showed cognitive deficits, the logic of the Syracuse program was to devise a delivery procedure which could get certain

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1 This work was supported by Grant No. D-156 from the Children's Bureau, Social and Rehabilitation Services, Department of Health, Education, and Welfare. The authors wish to express their appreciation to the parents and children who have participated in this project and to the teachers and child care workers whose continuing labors make the day care program possible.

2 Presented as part of a panel on "Impact of Evolving Institutional Settings on Early Child Development: Issues and Research Findings" at the 46th Annual Meeting of the American Orthopsychiatric Association, April 1, 1969.

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types of critical environmental experiences to the children prior to age three and thus hopefully circumvent the process of gradual decline. As there are few if any facilities through which large numbers of very young children in this society can be reached, it seemed necessary to devise a new kind of facility. The pressing clamor from working mothers for better child care facilities for their children presented the opportunity to set up a delivery process, and in 1964 the Children's Center, a Day Care Center for infants and toddlers, was established. Two years later its facilities were expanded so that at the present time children ranging in age from six months to five years receive care in the program.

At that time the developers of the program were acutely aware that there might be certain inherent risks in group day care for infants. For one thing, little was known about the health consequences of bringing substantial numbers of infants into daily contact. But the major concern stemmed from an awareness of the consistent findings that experiences which diluted the normal mother-infant relationship were likely to produce (be associated with) serious emotional, social, and cognitive impairment. The plan to establish group day care brought forth an alarm reaction from many persons that such a child care arrangement would surely produce deleterious social and emotional consequences, regardless of what it might foster in the cognitive domain. Particularly it was feared that exposure of an infant to large numbers of adults during the time that his primary maternal attachment was forming might weaken this attachment. If this were to happen, what price gains in any other area?

The question of whether such dilution does occur as a consequence of infant day care cannot be answered overnight. It is much easier to report gains or losses in the cognitive area (see Caldwell, et al[6]), because they can be measured more precisely (though not necessarily more meaningfully) and because

they might register their effects more quickly. However, a certain passage of time is required before one can deal adequately with the question of long-term effects upon the basic mother-child relationship associated with infant care. In the Syracuse project, sufficient time has elapsed to make this possible, and this report will present our findings.

Informal checks have been made all along the way, and the staff of the program has felt reasonably confident that child-mother attachment did not differ in this group from what would be expected. For example, resistance to separation upon being brought to the Center, calling for the mother during times of distress during the day, positive emotional responses shown upon sighting a returning parent, and scampering to produce proximity when the mother comes upon the scene have all been observed in the day care children. However, it still appeared necessary to make a formal check to determine whether there were basic differences in the strength of attachment in a group of day care and a comparable group of home reared infants.

What is Attachment

Attachment is a term which is somewhat elusive of a conceptual definition. Ainsworth[1] has attempted to distinguish among the terms object relations, dependency, and attachment. She suggests that attachment refers to an affectional tie to a specific person which may wax and wane as a function of the situation but which has an enduring quality which can survive even adverse socio-emotional circumstances. Attachment is characterized essentially by maintenance of proximity, by mutual pleasure in a relationship, and by reciprocal need gratification.

The over-riding importance of maternal attachment for healthy development has been largely inferred rather than demonstrated. That is, infants reared in circumstances which did not permit an exclusive child-mother attachment

to develop have been shown repeatedly to have deviant patterns of affective relationships with other people (see Goldfarb[9], Provence and Lipton[12], and summaries by Bowlby[5], Yarrow[16], and Ainsworth[3]). The inference about the necessity for individualized attachment has been challenged by Casler[7] and others, who suggested that the deficits shown in non-attached children are more the product of inadequate environmental stimulation than of maternal deprivation. The findings of Freud and Dann[8] that mother-separated children who have had prolonged contact with one another show intense peer attachment have been interpreted as indicating that reciprocal peer attachments can effectively substitute for maternal attachment. Also on the basis of his studies of non-human primates, Harlow[10] has suggested that peer attachments are actually more critical for subsequent species-normal social behavior than is maternal attachment. Mead[11] has also suggested that exclusive attachment is not a necessary precondition for healthy development, citing her experiences in non-literate societies in which infants frequently have rewarding contacts with several supportive adults.

Empirical studies of attachment are scarce in the literature. Schaffer and Emerson[14] studied longitudinally 60 infants ranging in age from 21 to 78 weeks of age. They found that specific attachments usually begin to develop during the third quarter of the first year of life but that this is preceded by a phase of indiscriminate attachment during the second quarter of the first year. They also attempted to determine which maternal patterns were associated with strength of attachment and exclusivity of attachment object. Mothers whose interaction with their children was more intense tended to have infants who were more intensely attached to them. Attachment was unrelated to whether the attachment object had had major responsibility for the child's physical

care. Maternal availability to child did not differentiate significantly infants who formed exclusive attachments from those who attached to more than one object. Children who had extensive contacts with other people, independent of the nature of the mother-child relationship, tended to show broader attachment patterns than did children who had limited contacts with other people.

By far the greatest amount of empirical work on the topic of attachment has been carried out by Ainsworth[2,4] and her associates. In a group of 28 Uganda babies she categorized 15-month-old infants in terms of strength and security of attachment as: unattached, insecure-attached, and secure-attached. She then compared the infants in these groups on certain maternal variables. Warmth of the mother, presence or absence of multiple mothers in the family, and use of scheduled versus demand feeding bore no relationship. The only variables that showed a clear relationship were total amount of care given the infants by both mothers and other people, mother's excellence as an informant, and positive attitudes toward breast feeding. Whether the mother had an ample milk supply was marginally related to attachment. In a sample of American babies and mothers studied throughout the first year of life,[4] additional variables found to show a relationship to strength of attachment were sensitivity of the mother in responding to the baby's signals and the amount and nature of the interaction between the mother and the infant.

Attachment during the preschool years, at which time the primary child-mother attachment should weaken somewhat and new attachments form, has been studied to only a very limited extent.

Objectives of this Study

The main question asked by the present study is whether there are

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differences in child-mother attachment and mother-child attachment between a group of home reared and a group of children who have participated in a group day care program since infancy. Stated in the null version, the formal hypothesis is that there are no differences between the groups. Additional questions to be addressed to the data relate to whether there are associations between attachment behavior and sex, race, and developmental level of child, and between attachment and stimulation and support available for development within the home.

Method

Subjects

Subjects for the study were 41 children who had been followed since early infancy in a longitudinal study relating infant and child development to patterns of environmental influence. Data for this study were collected as close to each child's 30-month birthday as possible. Twenty-three of the children had received their primary care from their mothers from birth until the time of data collection, except for brief periods during which the mother might have had temporary work or been out of the home because of illness. Eighteen of the children had been enrolled in the Children's Center, a day care center for infants and preschoolers for at least one year, with all of the children having been enrolled in the day care program prior to 15 months of age except for two. At the time data were collected for this study, the mean duration of day care attendance was 18.8 months, with a range of 5 to 24 months.

Demographic characteristics of the sample can be seen in Table 1.

Insert Table 1 about here

Most of the subjects were from lower class families, with 25 per cent being from one-parent families. As enrollment in the day care program was limited

to children whose parents requested the service, certain desirable touches of methodological elegance--such as matching for sex and ethnicity--could not be achieved. The Home group contained a disproportionate number of males and Caucasian children.

On a gestalt of home characteristics the two groups were, at the time of the present analysis, quite comparable. This is perhaps best supported by current scores on the Inventory of Home Stimulation. The Home sample had a mean of 52.8 and the Day Care sample a mean of 54.7 ($t = .98$, $P = NS$). However, Stimulation Inventory scores of 53.4 and 49.5 for the Home and Day Care samples when the study children were 12 months of age indicated a marginal difference ($t = 1.87$, $P = .10$) in favor of the Home Sample at that time. The closer contact between the parents of the Day Care sample and staff of the project, plus continued exposure to the philosophy of the day care program, presumably (and hopefully) accounted for the higher Home Stimulation scores earned by the Day Care families at the current assessment. Thus objectively the Day Care group would be described as having been somewhat more "disadvantaged" in the customary connotation of that term at the time their children entered the day care program; clinically and subjectively, there was no doubt but that they were.

Procedure

Primary data for the study were obtained from three sources: (a) an intensive, semi-structured interview, (b) a home visit, and (c) developmental testing. All procedures were scheduled as close together in time as possible, with an interview and the developmental test usually administered on the same day. Also used in the data analysis was the developmental test administered to the subjects when they were one year of age.

Interviews and Ratings. Most of the assessment procedures employed in this project were designed to cover some specific and relatively circumscribed aspect of child and/or family functioning. The interview conducted for the present study was deliberately planned to achieve the opposite purpose--namely, to obtain a broad picture of the mother-child interaction and of child behavior in settings not open to observation by the research staff. All interviews were conducted by a research-oriented social worker (CMW) in a relaxed setting in a room at the Children's Center especially furnished for contacts between the mothers and the staff. The mothers were told simply, "We want to talk with you about your child's activities and about some of the things you and he (she) are doing now." The study child was present during the interview, and ratings were based on both maternal report and maternal and child behavior. The interview was observed through a one-way vision mirror by a second staff member, and both the interviewer and the observer independently rated both mother and child.

Although the interview deliberately covered a broad array of topics, ratings made from the interviews mainly dealt with clusters of behavior representing attachment and achievement. For the present study, only those concerned with attachment were used.

Each variable was defined as ranging along a 9-point continuum, with all odd-numbered points described and behaviorally anchored in terms of either maternal or child behavior. The mothers were rated on all variables in terms of their behavior toward the study child, not toward other persons within that dimension. For example, a mother might be very close to her husband but very distant and remote from the study child; only the latter behavior entered into the ratings used for this data analysis. Each child was rated on the same variables twice, once in terms of their relationships with their mothers

and once on their behavior toward other people. These latter ratings were, of course, based entirely upon maternal report.

Both the interviewer and the observer rated the children and the mothers on these scales immediately following the interview and then, within a few hours, held a discussion and arrived at a consensual rating. Identical ratings were recorded on the final data sheet and were not discussed. Differences of one point were resolved in the direction of the more extreme (away from the midpoint of the scale) rating, and differences of two points were reconciled by recording the intermediate rating. When the ratings differed by more than two points, the two raters reassessed the interview and defended their ratings until a consensus emerged. Although this form of rating obviates the need for conventional inter-rater reliability figures, a check was made on the extent of agreement between the raters. On four protocols across all scales the two raters agreed within two points on the maternal ratings on an average of 87 per cent of the ratings (range 80 per cent to 93 per cent). On the child ratings the average agreement was 91 per cent (range 83 per cent to 96 per cent).

It should be noted here that both the interviewer and the rater knew whether a particular mother-child diad belonged in the Home or the Day Care sample. In a project like the present one, such knowledge will be unavoidable until a fiscal millenium is reached which permits the luxury of completely blind assessment by impartial assessors. However, the analytic strategy was not discussed with the interviewer until all the interviews had been completed and the ratings filed. Her assignment was identical to that communicated to the mothers: to get a broad picture of the mother-child relationships and the development of the children. Furthermore, one of her major functions in the total project was maintaining rapport with the Home (control) families.

Therefore, she was actually closer to the Home than to the Day Care mothers, most of whom received their family services through other persons on the staff. Thus it is the honest conviction of the authors that as much objectivity has been maintained as is possible under such circumstances.

Inventory of Home Stimulation. This is an experimental procedure developed within the research program of which the present study is a component. It represents an attempt to assess those qualities of the home environment impinging directly upon the young child which have the potential to inhibit or support development. The Inventory contains 72 binary items, about one-half of which depend entirely upon observation of home conditions for their score. The Inventory is scored on the basis of a home visit which usually lasts about two hours.

Developmental Examinations. The instrument used was the Stanford-Binet Intelligence Scale unless the child was somewhat slow and did not attain the basal age of two years. In such instances, and in all assessments of children younger than two, the Cattell Infant Intelligence Scale was used. Most of the examinations were given by the same person (ASH).

Operational Definition of Attachment

For this study attachment was defined operationally as involving the behavior characteristics sampled in the maternal interviews and rated on seven scales. The variables defined in terms of the behavior considered descriptive of the most intense manifestation for both mothers and children are as follows:

Affiliation. Mother: actively responsive to child; initiates non-routine contacts; likes to be with child. Child: initiates contacts with mother with high frequency; protests being left alone; follows mother around; resists separation.

Nurturance. Mother: initiates support of child; tries to gratify needs; extremely helpful. Child: highly responsible to mother's activities; offers support by maternally-reinforcing behavior; is helpful.

Hostility. Mother: openly hostile; disapproves of much of child's behavior; imposes own schedule upon child; perceives child negatively. Child: expresses anger toward mother; demanding; negativistic, uncooperative; resists manipulation.

Permissiveness. Mother: lets child have own way much of time; invites manipulation and control by child. Child: extremely submissive to maternal control; yields to mother's wishes.

Dependency. Mother: hates to separate from child; extreme emotional involvement with this child to the exclusion of other persons; activities exclusively child-centered. Child: strong attachment to mother; is dependent upon mother; maintains proximity; resists separation when proximity is possible.

Happiness. Mother: expresses great happiness and pleasure in relation to child; child is the emotional high spot in mother's life. Child: extremely happy in interaction with mother; laughs, smiles, shows positive affect.

Emotionality. Mother: persistent extreme overt emotional expression displayed to mother; interaction characterized by high affect rather than apathy and lack of involvement.

All scales except Hostility were expected to co-vary positively with attachment; low ratings on the Hostility scale were interpreted as indicative of strong attachment.

Data Analysis

For data analyses involving the behavior ratings, a distribution-free statistic was needed, and chi-square and Fisher's exact test were used. When the developmental tests and the Inventory of Home Stimulation were examined

internally, the t test for independent samples was used. For this type of study, it was felt that t Type II decision error (accepting the null hypothesis when it was actually false) carried greater interpretive risks. Therefore, it was decided to report and discuss P-values of .10.

Results

Attachment and Early Child Care

Child-Mother Attachment. The major hypothesis tested by the present study was that there was no significant difference between child-mother attachment patterns shown by a sample of children who had been home-reared since birth and a sample who had been enrolled in a group day care program since roughly one year of age. The hypothesis was tested by dichotomizing the behavior ratings (above and below the median for the total sample of 41) and examining the obtained distributions for disproportionality related to membership in the Home or the Day Care samples by means of chi-square. Results of this analysis are summarized in Table 2.

Insert Table 2 about here

From the first column of Table 2 it can be seen that there were no significant differences between the Home and Day Care samples on any of the ratings of the child's relationship with his mother. This failure to disconfirm the null hypothesis has profound implications for programs of early child care in this country, as it indicates that such group experience can occur without damaging the basic child-mother relationship which must be established during the first three years of life.

Child-Other Relationships. In Column 2 of Table 2 are presented data on the way the children in the Home and Day Care samples relate to other people in their environment. These data were gathered and analyzed in order to

determine whether children who see a larger number of people in an emotionally supportive context might not relate more positively to other people. The only known information upon which to base an hypothesis was Rheingold's finding that the infants in her experimentally mothered group were more socially responsive to a neutral person in the environment as well as to the person who had supplied the extra mothering in contrast to the controls. There was one scale on which a difference significant at the .10 level was found. This was on the Dependency scale, on which the Day Care children were found to have higher ratings than the Home children. As defined in the present scales, dependency connotes proximity-seeking more than help-seeking and perhaps indicates an enjoyment of interaction with others more than anything else. Although the difference is of marginal statistical significance, it offers some confirmation of Rheingold's finding.

Mother-Child Attachment. Of perhaps equal relevance to the child's attachment for the mother is the mother's attachment to the child. If early day care in any way diminishes the intensity of the emotion which the mother brings to the relationship with her baby, then this might also have negative consequences for the child no matter how normally the child's own attachment pattern might develop. The data in Column 3 of Table 2 indicate that this does not appear to be a valid threat. On six out of the seven ratings, there were no significant differences between the mothers of the Home and the Day Care samples. The Day Care mothers were rated as being less permissive than were the Home mothers. Whether this reflects a general concern with achievement, "looking good" as a parent, or a basic personality characteristic of early Day Care mothers cannot be determined. It may reflect the fact that the Day Care mothers are more attuned to parent education literature and perceive permissiveness as being out of favor.

Sex and Race Differences

If the samples for the two groups had been more perfectly matched in terms of all possibly influential variables, the finding of only one significant difference as a function of group membership (Home or Day Care) could be interpreted more unequivocally. It will be recalled from Table 1 that girls were over-represented in the Day Care sample and that Negroes were under-represented in the Home group. Differences in either of these variables might conceivably mask differences related to early child care experience. As so many recent research studies have implicated sex differences during early childhood, an analysis by sex was considered especially relevant.

In order to determine whether there were differences in ratings as a function of sex or race, the same kind of analysis described above and summarised in Table 2 for infant care group membership was carried out for sex and then for race. In the child-mother and child-other ratings, there was only one significant disproportion. That was on the Nurturance scale in the child's relationships with his mother (see definition under Method). On this scale girls were found (chi-square 3.81, P = .10) to be more responsive and helpful to their mothers--a difference which certainly fits the cultural stereotype for sex-typed behavior. There were no significant differences as a function of sex in the child-other ratings. On the mother-child ratings, no differences attained even minimal statistical significance.

On the racial variable there were no significant differences between the groups on the child-mother or child-other variables. On the mother-child attachment variables, there were three that attained significance: Affiliation (whites high, chi-square 3.35, P = .10), Permissiveness (whites high, chi-square 3.69, P = .10), and Emotionality (whites high, chi-square 10.81, P = .001). This appearance of a fairly consistent pattern on three out of the seven

maternal attachment scales suggests that in this particular sample the Negro infants receive slightly less intense affective responses from their mothers. These relationships also suggest that the earlier reported finding of relatively greater concern with control (low permissiveness) on the part of the Day Care mothers (see Table 2, column 3) may be confounded by the fact that Negro infants are slightly over-represented in the Day Care sample in relation to the Home sample.

In general these data strengthen the interpretation of no major differences in attachment patterns associated with Home or Day Care group membership. Unbalanced sex distribution made essentially no contribution, and racial differences in the mothers, if anything, should have increased the likelihood of obtaining significant differences as a function of group membership. Thus these findings indicate that the unbalanced representation in the two infant care groups of sex and race cannot be cited as obscuring differences that might have existed as a function of child care group membership.

Developmental Level and Attachment

Although the major task of this project was to ascertain whether there were differences in attachment patterns of mothers and children as a function of child care history, the research program of which this project is but one part is concerned with broader aspects of child development. Obviously a major orientation of the program has been an attempt to develop a model of infant care that would support a child's development and provide certain critical experiences necessary to normalize development that might not always be available within the home. It was conceivable that the child-mother and the mother-child attachment systems might be in some way contingent upon the rate of development shown by the child.

Ratings on the attachment variables were examined for an association with child's developmental level at 30 months, with the results shown in Table 3.

Insert Table 3 about here

Only one of the maternal variables, Nurturance, achieved marginal significance, thus suggesting that child's developmental level is not a major factor in determining the mother's reactions to that child. In terms of child-mother attachment, however, there is a definite suggestion that the better developed infants tend to be more positively related to their mothers. This finding should be especially reassuring to those who are concerned that cognitive enrichment might be fostered at the expense of social and emotional development. These obtained associations suggest quite the contrary, namely, that rate of development and strength of attachment co-vary positively.

In view of the fact that cognitive enrichment was one of the goals of the research program, it appeared valid to examine the developmental quotients of the children in order to determine whether there were demonstrable differences between the home and Day Care samples on this variable both in terms of current functioning and in terms of development prior to entering day care. The results of the analysis are shown in Figure 1. Data in Figure 1 show that

Insert Figure 1 about here

the two groups were not comparable with respect to developmental level at 12 months of age (another situation that one must live with in research where random assignments of subjects is not possible). The difference between the DQ's obtained on the children at that time is significant at the .01 level of confidence. The Home children show the decline in DQ over time that has been consistently reported for disadvantaged children. The Day Care children, while not showing any astronomical rise in developmental level, have managed to avoid decline and have, in fact, shown a slight rise. The difference between the

groups at 30 months is not statistically significant. This finding, coupled with the above results pointing to comparable attachment patterns in the two groups, is of profound significance for those concerned with social planning for young children. It shows that it is possible to devise programs which circumvent developmental decline which, at the same time, in no way damage the child's capacity to relate to his mother and to other important persons in his environment.

Home Characteristics and Attachment

It will be recalled that one of the assessment procedures used at 30 months was the Inventory of Home Stimulation. This procedure yields a score summarizing the behavior between mother and child observed during a home visit and also considers the extra-home experiences provided for children which are hypothesized as being supportive of development. The score obtained by a given mother on this Inventory should provide some information about whether the verbal report and behavior which formed the basis for the attachment ratings were at all representative of child and maternal behavior. Accordingly, scores on the Inventory were dichotomized and related to dichotomized ratings on the attachment variables for the total sample of 41 children. Data from this analysis are presented in Table 4.

Insert Table 4 about here

In Column 2 of Table 4 it is obvious that the mother-child ratings were rather consistently related to independent data about mother and child gathered during a visit to the home. On five of the seven attachment variables, high ratings on the interview data were associated with high scores on the Home Stimulation Inventory. Similarly, in two of the child-mother ratings, there was an association between amount of stimulation available in the home and

the intensity of the child's attachment to his mother. These data give support to the reliability of the behaviors sampled in the rating scales and also provide clues as to factors in the home situation which can be expected to correlate with strength of attachment.

Home Characteristics and Development

So far in this paper we have shown that child-mother and mother-child attachment are not appreciably influenced by early day care experience for the child. We have further shown that attachment patterns are to some extent associated with developmental level of the child and are rather strongly associated with amount and quality of stimulation available to the child within the home. The data collected for this study also lent themselves to an examination of the relationship between home stimulation, pattern of early child care, and development. Results of this analysis are presented in Table 5. Here the association between child's developmental level (above or below a quotient of 100 at 30 months) and family score on the Home Stimulation Inventory (above or below the median) is examined separately for the Home sample, the Day Care sample, and the total group of children and families. The results of this analysis are again quite reassuring from the standpoint of the

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Insert Table 5 about here

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contribution that early day care can make to the total welfare of the developing child. In the Home sample, there is a statistically significant association (Fisher's exact test) between score on the Home Stimulation Inventory and developmental level; similarly, for the total sample an association exists. However, for the Day Care sample, the distribution of scores on the variables of home stimulation and developmental level is random. Thus it appears that infant day care intrudes into the relationship between home stimulation and

developmental level; it can, in effect, offer at least some of the resources and some of the influence of a "second home." It is clearly not the absence of a home.

Discussion and Conclusions

At the time the project of which this study is a part was introduced to the scientific literature, the following statement of goals was made:

"This paper describes a recently initiated program which has as its aim the development of a day care program for children three years of age and under to foster their subsequent educability. In order to accomplish this aim, an attempt will be made to program an environment which will foster healthy social and emotional development as well as provide stimulation for cognitive growth during a developmental period that is critical for its priming. . . The basic hypothesis to be tested is that an appropriate environment can be programmed which will offset any developmental detriment associated with maternal separation and possibly add a degree of environmental enrichment frequently not available in families of limited social, economic, and cultural resources."[6]

The data reported in this paper demonstrate that at least with respect to the social-emotional variable of child-mother attachment, we can claim some success at this point. We <u>have</u> offered environmental enrichment, and we <u>have</u> shown that it is possible to do this without producing the classical picture of maternal deprivation. It is our hope that these findings will offer encouragement and reassurance to all persons and groups open to the possible benefits of infant day care but cautious about jumping into premature programming lest the welfare of the children be forgotten. We ourselves are reassured. In fact, the staff of the Children's Center has eagerly awaited the time when enough children would have been followed for a long enough time to permit the analysis carried out for this paper.

These findings do not guarantee that a socio-emotional deficit would never be associated with infant day care. In the strict statistical sense, we can generalize only to samples participating in similar programs. As such programs are so scarce in America, the generalizability of the findings is sharply restricted. What they do show is that one can have infants in day care without having jeopardized the child's primary emotional attachment to his mother. In the present program, great pains were taken to avoid this jeopardy. For example, no infants were taken into the program prior to the age of six months, by which time rudimentary forms of attachment have developed. In point of fact, most children who enter the program during infancy ~~come in~~ do so around one year of age. Also the program is one which offers a generous adult-child ratio (1:4 as a minimum) and which features in abundance the kinds of behavior shown to be associated with strength of attachment (intensity of response, sensitivity to child's needs, and general competence as adults). In various parts of the country at the present time day care for infants is being set up without some of the luxuries we have taken for granted and without overt concern for this factor. It is hoped that in some of the newer centers for infants being established an attempt will be made to replicate the findings of the present study.

The population of children and mothers participating in our research program offers to the field some extremely valuable information about the range of acceptable variability in patterns of social care for young infants which can be tolerated without damaging the developing children. In the past there has been a tendency to assume that any variation on the basic child-mother diad was damaging; thus any modification was assumed ipso facto to mean maternal deprivation. A good example of this can be seen in the tendency shown by many people at the time our program was getting started to imply that we

would be permitting institutionalization of infants. Day care and institutional care have only one thing in common: children in groups. Characteristics of institutional children that day care children do not share--prolonged family separation, a sameness of experience, absence of identity, isolation from the outside world, often no significant interpersonal relationship--undoubtedly far outweigh the one characteristic that the groups have in common. As mentioned earlier, relatively few empirical studies concerned with factors influencing the development of either child-mother attachment or mother-child attachment have been reported. Continuing work along these lines is continuing in our research program. The group with which we are working has sufficient variation on both child and maternal dimensions to permit further investigations of factors influencing attachment and other important types of social and emotional development. For example, second in importance only to the development of child-mother and mother-child attachments is the development of peer attachments and other types of child-adult and adult-child attachments. One of the findings of the Schaffer and Emerson[14] study referred to earlier was that exclusivity of maternal care was not related to strength of child-mother attachment, but its opposite, wide child care experiences, bore a slight relationship to the tendency of the infant to develop broader attachment patterns--i.e., to attach to more than one person. In this study our concern has been primarily with the influence of infant day care upon the basic child-mother attachment; only incidentally in this study did we address ourselves to the influence of such an infant care experience upon attachment to others. The social concern has been that infant day care would weaken the child-mother attachment; our data have shown that such does not appear to be the case. We are currently designing new research strategies to determine whether infant day care tends to be associated with strong attachments to more than one person

without in any way weakening the basic child-mother attachment. Attachment to the group, or to more than one person is not unlike the descriptions that have been given of Israeli kibbutz children.[15] It is almost truistic to say that this is a characteristic that is desperately needed in a world faced with over-population and hypertrophied group identifications that are too narrow to permit social adaptation.

When we talk about "group care for infants," it is easy to have it sound as though we are proposing something radically deviant for the children. In the Western world of today with its ticky-tacky houses, Dick and Jane and mother and dad readers, and our carefully nurtured concern for territoriality and for "mine" and "yours," it is easy to forget that, historically speaking and right up until recent times, "group care" was the species pattern for infants and children of Homo Sapiens. Many children living and developing in a small amount of space was the rule, not the exception. Furthermore, the prevalence of extended family living arrangements made for interpersonal environmental settings not unlike that which exists in our infant day care setting: that is, a small group of infants cared for by several friendly and supportive adults but with never a question about who belongs to whom. Our teachers and nurses no more wish to usurp the maternal and paternal role than did relatives and friends who helped perform the child care functions in non-literate societies and in our own country until some 60-70 years ago. As this is a panel on "innovative institutional settings for young children," we would like to claim that our program is truly innovative. However, we must at least consider the possibility that it represents regression toward a pattern that is normal and adoptive for the species. At the same time, we fervently hope that it represents progression toward the goal of complete utilization of environmental resources to foster optimal development for our children.

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TABLE 1

Demographic Characteristics of the Sample

	HOME	DAY CARE
Sex		
Boys	14	4
Girls	9	14
Race		
White	19	9
Non-white	4	9
Parents in Household		
1 parent	3	7
2 parent	20	11
No. of Siblings		
None	6	6
One	11	6
Two	4	1
Three or more	2	5
Mother's Education		
Some High School	9	12
High School Graduate	12	2
Some College	2	4
Father's Education		
Some High School	10	7
High School Graduate	8	3
Some College	2	1
Social Class		
Lower Social Class	20	14
Middle Social Class	3	4
I.Q. (Mean)	107.2	108.8
Stim Score (Mean)	52.8	54.7

TABLE 2

Summary of Chi-square analysis of distribution of ratings (above and below median) for Home and Day Care children

Scale	Child-Mother	Child-Other	Mother-Child
1. Affiliation	.24	.05	.00
2. Nurturance	.40	.20	.03
3. Hostility [1]	.00	.96	.24
4. Permissiveness	.50	.17	5.49 xx (DC)
5. Dependency	1.45	3.39 x (DC)	.24
6. Happiness	1.04	.59	.96
7. Emotionality	.59	1.62	.09

[1] Low scores are regarded as indicative of strong attachment

x Significant at .10 level

xx Significant at .05 level

All chi-squares have df = 1 and represent 4-cell tables enumerating numbers of Ss in Home and Day Care samples rated above or below the median of the total sample on the behavior ratings. Letters in parentheses (H,DC) after significant chi-squares identify the group excessively represented in the above-median cell.

TABLE 3

Summary of chi-square analyses of attachment and child's developmental level

	Child-Mother	Mother-Child
Affiliation	.59	.00
Nurturance	3.69 x	2.81 x
Hostility	3.69 x (HL)	.02
Control	1.77	.15
Dependency	1.77	1.95
Happiness	7.00 xxx	.12
Emotionality	.02	.33

TABLE 4

Summary of chi-square analyses of Home stimulation and Attachment behavior (above & below median on STIM, above and below median on attachment scales).

	Child-Mother	Mother-Child
Affiliation	7.06 xxx	3.38 x
Nurturance	10.51 xxx	5.11 xx
Hostility	1.71	.09
Control	.00	.85
Dependency	.00	7.06 xxx
Happiness	.20	4.89 xx
Emotionality	1.95	6.93 xxx

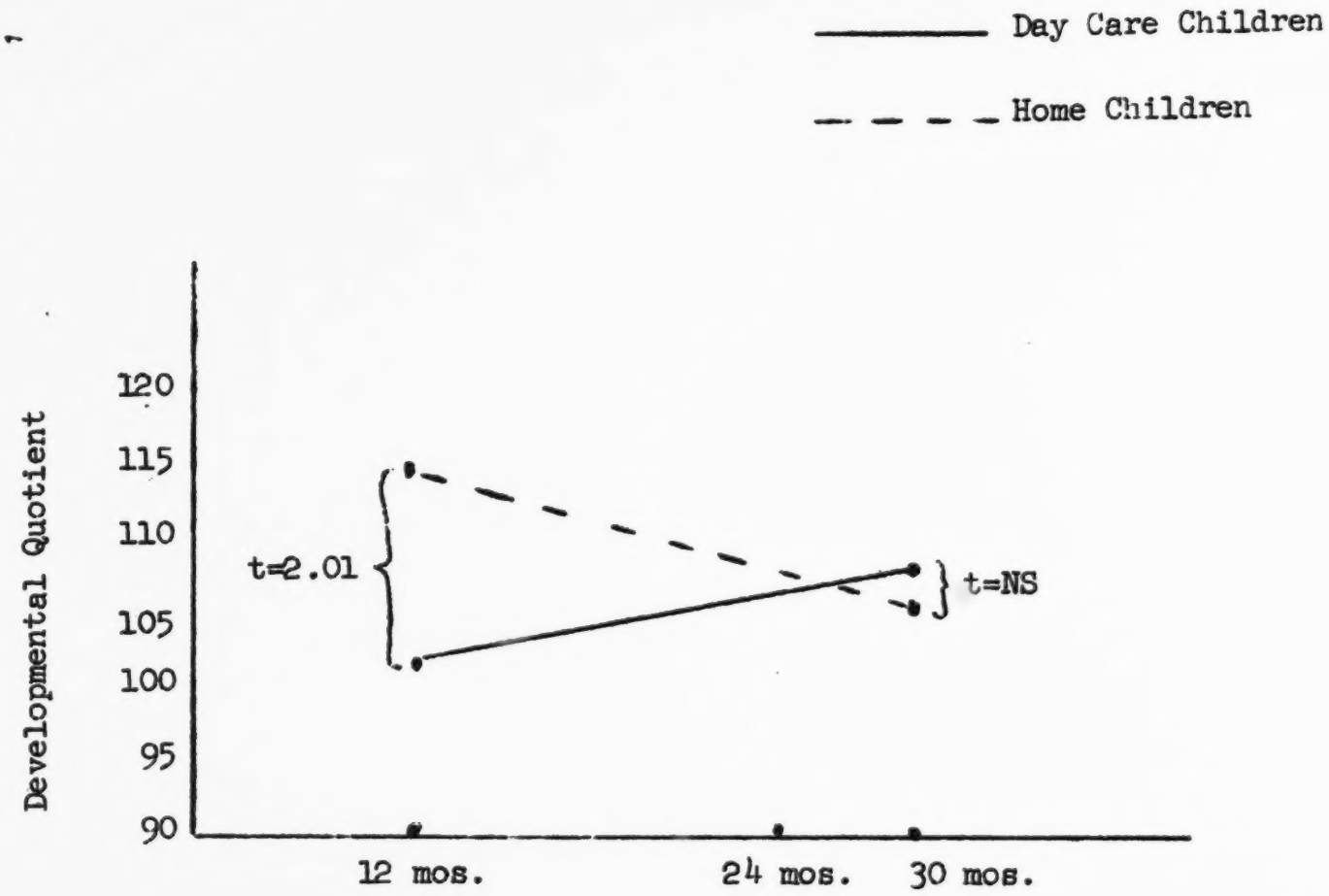
Significant at x .10, xx .05, and xxx .01 levels. Disproportionality was consistently of the High-High pattern.

TABLE 5

Distribution of Home Stimulation scores and developmental quotients for Home, Day Care and Total samples.

	HOME		DAY CARE		TOTAL	
	Hi Stim	Lo Stim	Hi Stim	Lo Stim	Hi Stim	Lo Stim
Above 100	9	3	7	4	16	7
Below 100	3	8	4	3	7	11
	P=.05		NS		P=.05	

FIGURE 1



LEGEND FOR FIGURE 1

Figure 1. Time trends in Developmental Quotients for Home and Day Care children at 12 and 30 months.